Since the essence of optics is geometry, these geometrical limitations in the claims distinguish over the references and certainly obviate any anticipation. This is because in the case of the cited references the images are of the surface profile of the object viewed. This is as pointed out in detail in the Amendment dated May 23, 2001 (response to Action of February 23, 2001) where the references relied upon are discussed.

Briefly, each and every reference is for a surface profilometer. Imaging occurs at the surface. This is true even in the case of the transmission system of Ooki shown in FIG. 21 where the image is strictly on the surface. In Applicant's case as defined in the amended claims, the imaging plane is inside the medium and as noted in Claims 31 and 35, the beams are overlapping outside the imaged section to reduce the light from the sites adjacent to the section that is in the direction propagation of the beams (above and below the image plane).

It is therefore believed that the claims define a system operative on a different basis than the surface profilometers of the references. The references do not even allude to the problem solved by the Applicant's invention. Accordingly, the rejection of Claims 39-42 as being unpatentable is not believed to be in order.

The Examiner in his rejection continually refers to the beams of the references being overlapping in the medium at sites. While the beams may be overlapping, they are not focused inside the medium in the section being imaged (there is no imaging plane inside the medium). Accordingly, there can be no sites adjacent to the imaged section (above and below the image plane) from which sites the polarization of the light is such that destructive interference and enhancement of the imaged section of the specimen can occur even accidentally.

Again, the Examiner is asked to recognize that the geometry of what is claimed, over what is in the reference, that the imaged section and image plane is inside the medium. This provides features which enable beams of different polarization to illuminate sites in the medium adjacent (above and below) where the image is formed so

that light from these sites destructively interferes in the returned light from the specimen from which the image is generated.

Respectfully submitted,

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Enclosures: Notice of Appeal (in triplicate);
Request for Two-Month Extension of Time (in duplicate) with a check in the amount of $200.00; and
Change of Attorney Address

APPENDIX

Marked up Version of Claims

29. (amended) A system for imaging a section of a medium which receives and returns light from the section and from sites adjacent to the section, said system comprising:

optics for directing light in beams of different polarization in said medium along an imaging plane inside the medium and collecting returned light from the medium; and

means for generating an image of the section from said returned light in response to a polarization parameter of said returned light.

30. (amended) The system according to Claim 29 wherein said beams are [capable of] overlapping in said medium outside the imaged section to reduce the part of said returned light from the sites adjacent said section on opposite sides of said section in the direction of propagation of the beams.

31. (amended) The system according to Claim [29] 30 wherein said beams are incident said medium at spots spaced in at least one direction along an imaging plane.

32. (amended) The system according to Claim [29] 31 wherein said polarization parameter is the degree of rotation of the polarization of said returned light.

33. (amended) The system according to Claim [29] 31 wherein said polarization parameter is a function of the differential circular dichroism or optical activity of the returned light.

34. (amended) A method for imaging a section of a medium which receives and returns light from the section and from sites adjacent to the section, said method comprising the steps of:

directing light in beams of different polarization in said medium along an imaging plane inside the medium;

collecting returned light from the medium; and

generating an image of the section from said returned light in response to a polarization parameter of said returned light.

35. (amended) The method according to Claim 34 wherein said beams are [capable of] overlapping in said medium outside the image section to reduce the part of said returned light from the sites adjacent said section on opposite sides of said section in the direction of propagation of said beams.

36. (amended) The method according to Claim [34] 36 wherein said beams are incident said medium at spots spaced in at least one direction along an imaging plane.

37. (amended) The method according to Claim [34] 36 wherein said polarization parameter is the degree of rotation of the polarization of said returned light.

38. (amended) The method according to Claim [34] 35 wherein said polarization parameter is a function of the differential circular dichroism or optical activity of the returned light.

39. (amended) An optical coherence imaging system comprising:

a source providing light which is of low coherence;

optics which directs the light from said source into a reference arm and a sample arm to an image plane [in] inside a specimen section;

a polarization separator which shears said light into two beams;

a polarization retarder between said separator and said specimen providing said sheared beams each with an opposite sense of generally orthogonal polarization;

an objective for focusing said two beams at spots spaced from each other in said image plane, which beams overlap in said section outside the vicinity of said image plane and on opposite sides of said plane in the direction of propagation of said beams;

a detection arm into which light is directed by said beam splitter from said reference and sample arms; and

means for providing images in response to interference of light in said detection arm which images are enhanced by reduction of light from said vicinity.